

IX. — *Diptera* (*Orthorrhapha Brachycera* and *Cyclorrhapha*) from *Spitsbergen* and *Bear Island*. *Results of the Oxford University Expedition to Spitsbergen, 1921*.—No. 22.
By J. E. COLLIN, F.E.S.

THE small collection of *Diptera* placed in my hands by Prof. E. B. Poulton for purposes of identification contained only eight species. Of the seven collected in *Spitsbergen*, six have previously been recorded from that island, while all seven appear to have a wide range of distribution in the north. The eighth species, collected in *Bear Island*, appears to be an undescribed species; its association with gulls' nests, and the fact of its having been found also in the island of *St. Kilda*, makes it probable that it will also be found to have a wide distribution in northern regions.

Empididæ.

Rhamphomyia caudata, Zett.

1 ♂, south side of Ice Fiord, Advent Bay, 0–100 feet. On flowers of *Dryas octopetala* and *Cerastium alpinum*. C. S. Elton, July 18th, 1921.

This brightly shining black species with pilose legs and remarkable male hypopygium was recorded from *Spitsbergen* by Holmgren in 1869. It has been confused by some writers with *R. æthiops*, Zett., a species whose range of distribution extends much farther south; consequently it is not possible to record accurately the distribution of *caudata* beyond the fact of its occurrence in Northern Scandinavia and *Spitsbergen*. If, as I believe, *longestylata* is a synonym of this species, it also occurs in the *Kanin Peninsula*, North Russia.

Syrphidæ.

Syrphus tarsatus, Zett. (*dryadis*, Holmgr.).

1 ♀, south side of Ice Fiord, Advent Bay, 0–100 feet. On flowers of *Dryas octopetala* and *Cerastium alpinum*. C. S. Elton, July 18th, 1921.

This female is certainly the same as Holmgren's *dryadis*, the type of which was also found frequenting the flowers of *Dryas* in Advent Bay. The face is obscurely yellowish, with the jowls and mouth-edge black, the dark colour spreading upwards at the sides to include the facial foveæ, and with three brownish-black stripes extending upwards from the front

mouth-edge towards antennæ (a broader stripe each side of the facial protuberance and a narrower ill-defined stripe over it). Frontal lunule immediately over the base of antennæ yellow. Abdomen ovate, with narrow, transverse, ill-defined, reddish bands on third and fourth segments only; these bands are near the base of each segment and do not reach the side-margins, and are broadly separated at the middle. Hind margin of the fourth segment reddish yellow, of the fifth segment more narrowly yellow. The four anterior tibiæ and the apical third of their respective femora yellowish, the tip of hind femora and basal third of hind tibiæ more obscurely yellowish.

Syrphus tarsatus, Zett., var.

A second female taken at head of Ice Fiord, Gyps Valley, 100–200 feet, on slope with *Dryas* and *Saxifraga*, on June 26th, 1921, by C. S. Elton, appears to be a variety or possible distinct species. The face is practically without any trace of yellow ground-colour except between the base of each antenna, though dusted greyish, most conspicuously so at sides and below antennæ, leaving the facial protuberance, clypeus, and extreme margin of mouth-edge more shining black. Abdomen narrower, without any trace of bands. Legs darker, the anterior tibiæ very obscurely yellowish and only the tip of femora yellowish. Holmgren recorded the capture of females of his *dryadis* without pale markings on the abdomen.

S. tarsatus (of which *S. dryadis* is now considered a synonym) occurs in Greenland, Iceland, Northern Scandinavia, Spitsbergen, Nova Zembla, and North-west Siberia.

Anthomyidæ.

Acroptena frontata, Zett.

1 ♀, head of Ice Fiord, Gyps Valley, 100–200 feet, on slope with *Dryas* and *Saxifraga*. C. S. Elton, June 26th, 1921.

This species has previously been recorded from Spitsbergen by Holmgren; it also occurs in Greenland, Scandinavia, and the mountains of Central Europe, but in the last locality a closely allied species has certainly sometimes been mistaken for the true *frontata*.

Limnophora hyperborea, Bohem.

The genus *Limnophora*, sens. lat., which has its headquarters in the north, is well represented within the Arctic

Circle; even from Spitsbergen alone some dozen supposed species have been described or recorded by Boheman and Holmgren. These early writers failed to describe the important chætotactic characters by which the different species may be best recognized, and this omission, coupled with the fact that specimens from the Arctic region are seldom brought home in good condition, has been the cause of great confusion in connection with the species concerned.

In Kertész's 'Katalog' the Spitsbergen species stand as follows:—

1. *Limnophora denudata*, Holmgr., ♂ ♀.
ranunculi, Holmgr., ♀.
2. *L. dorsata*, Zett., ♂ ♀.
hyperborea, Bohem., ♂ ♀.
labiosa, Bohem., ♀.
megastoma, Bohem., p.p.
3. *L. fuliginosa*, Holmgr., ♂.
4. *L. illota*, Holmgr., ♂.
5. *L. megastoma*, Bohem., ♂ ♀.
ludibunda, Holmgr., ♂.
triangulifera, Bohem. (1865), nec Zett.
? *conspicua*, Holmgr., ♂ ♀.
6. *L. pauxilla*, Holmgr., ♂ ♀.
7. *L. vitticollis*, Zett., ♂ ♀.

Ringdahl, who has done much to clear up the Swedish species of *Limnophora*, gives (after an examination of Zetterstedt's types) *vitticollis*, Zett., as a synonym of *triangulifera*, Zett., but it is not certain that this applies to Holmgren's *vitticollis*. More recently (1917) Lundbeck has varied the synonymy of some of the Spitsbergen species by quoting *denudata*, Holmgr., as a synonym of *contractifrons*, Zett. & Stein, and the above *dorsata* of Holmgren (NOT of Zetterstedt) as a synonym of *triangulifera*, Zett. & Stein, with *pauxilla*, Holmgr., and *ranunculi*, Holmgr., as doubtful synonyms. I very much doubt the correctness of this latter synonymy of Lundbeck's. *L. triangulifera*, Zett., has clear wings, while Holmgren's *dorsata* was described as having:—"Alæ . . . costam versus præsertim infuscatæ, areis basalibus quibusdam et macula ad apicem nervi auxiliaris ut plurimum fuscis; nervo transverso ordinario umbra fusca, plus minusve distincta."

A species captured in some numbers by Mr. Elton answers admirably to this description, and is certainly NOT *triangulifera*, Zett., nor is it *dorsata*, Zett., as interpreted by Ringdahl. As Holmgren quoted *hyperborea*, Bohem., as being "most certainly" a synonym of the species he called *dorsata*, and Mr. Elton's specimens are not *dorsata*, Zett., it would appear that *L. hyperborea* is the correct name for this Spitsbergen species. I have compared specimens received from Ringdahl of his *L. frigida* (described in 1920 from specimens captured in the mountains of Northern Sweden) with the Spitsbergen *hyperborea*, and consider them identical. The synonymy may therefore be quoted as follows:—

L. hyperborea, Boheman (1865), ♂ ♀.

dorsata, Holmgr. (1869), nec Zett., ♂ ♀.

frigida, Ringdahl (1920), ♂ ♀.

? *labiosa*, Bohem. (1865), ♀.

? *megastoma*, Bohem. (1865), p.p.

Details of the capture of the five males and seven females in the collection from Spitsbergen (all but one being taken at head of Klass Billen Bay, Bruce City, shingly raised beach, 25–50 feet) are as follows:—

A male on July 19th about huts on shingle of raised beach. A male and female on July 22nd flying over shingle with tundra and ponds. A male on July 30th and a female on Aug. 14th on hut-window pane or ledge below. A male on Aug. 1st on flowers of *Dryas octopetala* near pond. Another male on Aug. 2nd on flowers of *Silene acaulis*. Three females on Aug. 2nd on flowers of *Saxifraga hirculus* near pond. The above all captured by C. S. Elton. The last at this locality being found by J. Walton on a poppy-head on Aug. 2nd, dead, with ovipositor extended. A female was also taken at about 60 feet on north side of Ice Fiord, Cape Boheman, on July 12th by C. S. Elton flying over a strip of marshy land among the rocky tundra near coast.

I find nothing to add to Ringdahl's description of *frigida* in Ent. Tidskr. 1920, pp. 27–28, and the species can be recorded with certainty from only Northern Scandinavia and Spitsbergen.

Limnophora megastoma, Bohem.

Of this species there are six females in the collection, all taken by C. S. Elton—four at Klass Billen Bay, Bruce City, shingly raised beach, 25–50 feet, viz., one on July 22nd on

shingly raised beach with *Dryas* &c., one on Aug. 2nd on flowers of *Silene hirculus* near pond, one on Aug. 4th on tundra on shingly raised beach, and one on Aug. 14th on hut-window or ledge below. A single female was captured on July 10th on Prince Charles Foreland, 30-80 feet (island west of Spitsbergen), Freshwater Bay district N.E. of island, amid flowers of *Silene acaulis* on rock on hill. Also a single female on July 18th from south side of Ice Fiord, Advent Bay, 0-100 feet, on flowers of *Dryas octopetala* and *Cerastium alpinum*.

All these specimens (except that from Advent Bay) are dwarfed (about 3.5 mm.), and possess usually only three pairs of strong postsutural dorso-central bristles on thorax, the second pair behind suture absent or only represented by a stiff hair. Moreover, the discal cell is somewhat pointed at the lower outer angle as in *pauvilla*, Holmgr., and *illota*, Holmgr.; nevertheless, I cannot consider them in the absence of the male as anything more than a variety of the *megastoma*, Bohem., recognized by Ringdahl as occurring in Northern Scandinavia. The same species also occurs in the island of Jan Mayen.

MUSCIDÆ ACALYPTRATÆ.

Scatophaga varipes, Holmgr.

A pair taken by C. S. Elton, Aug. 14th, on human dung just above high tide on the raised shingly beach at head of Klass Billen Bay, Bruce City.

This species differs primarily from *squalida* in having in the male more pilose legs, without the antero-dorsal row of strong bristles on hind femora, at most with only 1-2 such bristles towards tip; the hind tibiæ are more curved, the fine hairs on thorax rather longer, and the two rows of acrostichal hairs somewhat nearer each other. In the female, though the row of bristles is present above hind femora, the legs (especially the hind tibiæ) are longer-haired than in *squalida*. Both cross-veins of each wing are strongly infuscated.

The northern species of *Scatophaga* are not well known. *S. varipes* was described from specimens caught in Nova Zembla, and has not previously been recorded from Spitsbergen. I have seen specimens from the island of Jan Mayen. It appears to vary (as its name indicates) in the colour of its legs.

Fucomyia frigida, Fln.

A single male from Prince Charles Foreland (island west of Spitsbergen), Freshwater Bay district, N.E. of island; captured on July 4th at Pt. Carmichael at about 40 feet on sandy zone of shingly raised beach.

The specimen is one of the larger forms (7.5 mm.) with strongly pilose middle tarsi, but has no indication of yellow markings on the abdomen. *F. frigida* is a species of wide distribution.

Leria septentrionalis, sp. n., ♂ ♀.

Small, uniformly dark grey species, with extensively darkened frons, antennæ, and legs; only one pair of vibrissæ and only one strong sterno-pleural bristle.

♂. Head with slightly wider space between hind margin of eyes and postocular ciliation than in allied species, and face with a fairly distinct central keel, continued upwards between antennæ. Occiput, vertex, and narrow frontal orbits dull grey, the frontalia dull brownish black, becoming a lurid red only towards front margin. Face and the deep jowls so densely dusted greyish as to completely obscure the reddish-yellow ground-colour. Antennæ with the first two joints reddish, but the almost circular third joint dull brownish black, with reddish tinge at least on inner side about base; base of arista (apparently the first two joints) conspicuously dilated, the rest slender and microscopically pubescent; the whole arista short, the distance from tip of arista to base of antenna being conspicuously shorter than frons from base of antennæ to vertical ridge. The front orbital bristle quite as long as the hind one (one male specimen is abnormal in having only two orbital bristles in all, and these not placed exactly opposite each other). Only a single strong bristle at vibrissal angle, and a single row behind it (along side of mouth-edge) of quite small bristles. Clypeus dusky. Palpi reddish yellow.

Thorax uniformly dull dark grey like the occiput and vertex, without darker stripes on disc. A distinguishing feature lies in the shortness of the three anterior of the four pairs of dorso-central bristles; the hind (prescutellar) pair are moderately long, but the others are hardly twice the length of the short hairs on disc of thorax, though these short hairs are certainly rather longer than usual. Only one strong sterno-pleural bristle; mesopleura and prothoracic sternum bare.

Abdomen the colour of thorax, with a slight reddish-brown tinge on at least the lower part of the somewhat globular hypopygium. Genital lamellæ rather slender and pointed, more like those of *inscripta* than those of *serrata* or *modesta*. Hind-marginal bristles short, fine, and inconspicuous.

Legs coloured much as in *modesta*—*i. e.*, with the trochanters, extreme base and tip of femora, tibiæ (except for more or less extensive darkening about middle), and base of at least the four anterior tarsi obscurely yellowish. No bristles above hind femora towards tip. Middle tibiæ with a slight dilation or projection at extreme tip beneath, on which 1–2 apical spurs are placed (there is a somewhat similar dilation in true *ruficauda*, Zett., and *inscripta*, Mg.). No hook or projection at tip of basal joint of either front or hind tarsi. Wings rather short and narrow, with the costal spines very inconspicuous, hardly longer than the other costal pubescence. Halteres yellow, with slightly dusky knobs.

♀. Closely resembling the male, but abdomen more pointed, terminating in a pair of long yellowish-brown papillæ, clothed with short dark hairs and each with a pair of quite long hairs at the tip. Middle tibiæ without the projection at tip beneath of male. Wings rather longer than in male.

Length 3–4 mm.

2 ♂♂ and 3 ♀♀ taken by C. S. Elton at south-east corner of Bear Island (between North Cape and Spitsbergen) near South Harbour, in moss of glaucous gull's nest, on June 22nd, 1921; also taken in the island of St. Kilda in June–July 1905 by Rev. J. Waterston; the latter being the “No. 90, *Blepharoptera* sp.!, 4 ♂♂ and 2 ♀♀ undetermined,” mentioned in Grimshaw's paper on the Diptera of St. Kilda in ‘Annals of Scottish Natural History,’ 1907, p. 156.

Several species of *Leria* have been described or recorded from the extreme north, such as *serrata*, L., *modesta*, Mg., *inscripta*, Mg., *geniculata*, Zett., *tibialis*, Zett., *minuta*, Zett., *borealis*, Bohem., and *maculipennis*, Beck. Of these the first three are distinct species well known to me; *geniculata* was described by Zetterstedt as having “setis mystacinis utrinque pluribus” like *serrata*; *tibialis*, Zett., is placed by modern writers as a small variety of *serrata*, and I have a note made many years ago of a male in Zetterstedt's collection that the genital lamellæ resembled those of *serrata*; in any case, it appears to differ from *septentrionalis* in having paler antennæ, frons, and tibiæ, and a slightly infuscated cross-vein; *minuta*, Zett., with “antennis, fronte . . . pedibusque rufo-testaceis,” must be a paler species than *septen-*

trionalis; *borealis*, Bohem.*, with "setis mystacinis utrinque pluribus . . . Thorax lineolis sub-quinis fuscis. Abdomen cinereum . . . segmentis margine apicali anguste pallidis," is probably, as indicated in Kertész's 'Katalog,' a synonym of *modesta*, Mg. Finally, *maculipennis*, Becker, is distinguished primarily by the strongly infuscated middle cross-vein.

X.—*New Sarcophagidæ from Asia, with Data relating to the dux Group* †. By R. R. PARKER, Bozeman, Montana.

DR. G. BÖTTCHER, writing in 1912 (1, pp. 735-736), considered *Sarcophaga tuberosa*, Pandellé, *S. harpax*, and *S. exuberans*, Pand., to be varieties of *S. tuberosa*. In previous papers the writer has followed this practice, treating these and other related forms, more recently described, first as subspecies of *S. tuberosa* and later as subspecies of *S. dux*, Thomson (2). This grouping has been due to the similar structure of the genital apparatus, especially of the penes, and the constant occurrence of a certain group of external characters in all these species. Furthermore, the grouping has seemed advisable as an indication of relationship. Including the three new forms described in this paper, the number of recognized members of the group is ten, each added member indicating more strongly the really specific value of the differentiating external characters. In future, therefore, the writer believes these forms should be recognized as distinct species belonging to a group within the genus. This group should be known as the *dux*-group, *S. dux* being the first described member.

In his last paper dealing with this group (2) the writer designated two forms as "subspecies *a*" and "subspecies *b*" respectively—the one being *S. shermani*, sp. n., herein described, and the other *S. exuberans*. Which name belonged to which species could not be stated, because of reasons then noted. It is now possible, however, to make the above designations, thanks to Dr. J. Villeneuve, who kindly forwarded a specimen of *exuberans*, which he had compared with Pandellé's type. It was further apparent that a

* This species was first described by Boheman in 1865 (Öfr. K. Vet.-Akad. Förh. Stockholm, xxii. p. 573), and not, as given in Kertész's 'Katalog,' by Holmgren in 1872.

† Contribution from the Entomological Laboratory of the Montana State College, Bozeman, Montana.